ABSTRACT

A method of induction heat treatment of articles having curved outer surfaces, such as differential housings. The method employs a semi-rectangular induction coil that is adapted to provide a plurality of lateral magnetic fields that are used to induce currents in, and thereby provide heat to, a portion of the curved section of the article. The method and induction coil are particularly adapted to provide an induction hardening heat treatment of a curved heat treatment portion of a differential housing. The differential housing was cast from nodular iron. The induction-hardening heat treatment comprised heating the heat treatment portion of the differential housing above the austenite transition temperature and quenching to below the martensite transformation temperature.